

Knowledge-Sharing Practices

Knowledge-sharing practices describe the methods and techniques that the agency has or will institutionalize as part of its day-to-day operations. These practices can be generally classified as either those to transfer explicit (easily-codified) knowledge and those that transfer implicit (fact-based) and tacit (cognitive) knowledge.

Practices for Sharing Explicit (easily-codified) Knowledge

Documentation

Codification and Documentation of Processes

Documented policies and procedures are very effective for transferring critical knowledge to individuals, particularly providing instructions for performing repetitive tasks and duties. Documented procedures aid employees long after the individuals with the procedural knowledge have left an organization. Currently the agency codifies knowledge in numerous documents including desk procedures, Management Directives, Standard Review Plans, NUREGs, the NRC History Program, office instructions, processes for license amendments, and project manager handbooks. These documents satisfy a critical need to provide new, less-experienced staff with guidance that was previously passed on by on-the-job training, examples and precedents, and word of mouth.

Under the agency KM program informal processes and procedures will be codified where appropriate. Additionally there will be increased emphasis on maintaining policies and procedures up-to-date and on explicitly increasing discussions of technical bases, justifications, statements of consideration, and etc. included in agency documents to support KM.

Interviews and videotaping

Knowledge Capture Interviewing

Knowledge capture interviewing describes a process for capturing critical tacit knowledge by conducting video interviews of knowledgeable staff and distilling it into short, retrievable video clips or other formats such as interview transcripts. The video clips and interview transcripts are explicit knowledge items that are subsequently used for sharing the knowledge among staff members. Although relatively new to NRC, videotaping face-to-face interviews of subject matter experts possessing critical tacit knowledge is a widely-used methodology in the public and private sectors. Experience in both of those sectors indicates that knowledge capture interviewing is an effective approach for capturing certain types of tacit knowledge.

Knowledge capture interviews are often employed as a short-term approach to capturing the knowledge of departing individuals. Performing interviews may be an effective short-term solution for knowledge that would otherwise be lost from the agency, but the long-term approach of performing interviews throughout an individual's career, as opposed to only at the end of their career, provides several additional benefits. One benefit is that the knowledge is captured and disseminated for reuse by the staff sooner. Another benefit is that there is an

opportunity, almost always lost with the short-term approach, for follow-on discussions with the expert to clarify and expand the captured knowledge. Lastly, particularly when knowledge is event-based, important details that would tend to be forgotten over time may be captured by performing interviews closer to the event.

The staff has conducted some limited training and pilot interview sessions and is evaluating the results as well as resolving some logistical and legal questions such as the status of knowledge capture interviews and community-of-practice postings under the Freedom of Information Act (FOIA) and identifying IT/IM techniques to allow for indexing and cross-referencing interviews before proceeding with an expanded pilot program for this technique.

Training

Formal Training, Qualification, and Development Programs

The NRC's formal training and development programs provide a means of defining, capturing, and disseminating the information and knowledge that is required to carry out the duties for a specific position or activity. They are a mechanism for ensuring that relevant organizational knowledge, experiences, and lessons learned are transferred to replacement staff in a reliable and systematic fashion.

The agency currently has many effective and well-established formal training, qualification, and development programs in place including New Employee Orientation, the Nuclear Safety Professional Development Program, Honor Law Graduate Program, Leadership Potential Program, Team Leader Development Program, Senior Executive Service Candidate Development Program, Acquisition Project Manager Certification, Inspector Qualification, Instructor Qualification, Headquarters Operations Officer Qualification, and Headquarters Emergency Response Officer Qualification. In addition to classroom training activities, many of these programs include on-the-job training elements that facilitate tacit knowledge transfer from more-experienced staff to newer staff.

Under the agency KM program there will not be any direct effort to create new formal technical training, qualification, or development programs. However, these programs will be identified as part of the agency's inventory of KM techniques and evolve over time consistent with the objectives and results of our KM initiatives. We expect that continuous efforts to identify critical bodies of knowledge and programs like the Agency Lessons Learned Program will periodically identify necessary changes or additions to the agency's existing training courses and occasionally the need to develop new training courses.

Training Courses and Technical Seminars

The Technical Training Center and Professional Development Center sponsor numerous courses designed to maintain the important skills and knowledge of the agency staff. These courses are developed using both agency and external subject matter experts to capture their unique knowledge and experience and to disseminate that knowledge widely throughout the agency. Individual offices and regions also provide locally-developed and administered training, operational review sessions, and seminars for their staff on specific topics that aid in transferring knowledge from experienced to less-experienced employees and as a method of transferring lessons learned from events to the staff.

Under the agency KM program the staff will provide knowledge-sharing seminars on technical topics both agencywide, for subjects that have a broad application or interest, and at the local level for technical topics that primarily relate to the work of an individual organization.

Knowledge Management Overview Training

NRC staff members need to understand the senior leadership's vision and expectations for knowledge capture, transfer, and sharing. Managers and supervisors need to understand their roles and responsibilities under the agency KM program and how to use the tools that they need to meet those responsibilities. All staff members will need varying degrees of training and familiarization on how and when to use the agency's KM practices and techniques.

The agency has already engaged some KM thought-leaders including David and Alex Bennet, Steve Denning, and David DeLong to present at agency executive leadership seminars. As a part of the agency KM program, the staff intends to also develop and present KM training to specific categories of employees dealing with both the conceptual and practical aspects of KM as it is applied at NRC.

Practices for Sharing Implicit (fact-based) and Tacit (cognitive and technical skills – experience based/cultural) Knowledge

Storytelling

Stories are real-life situation that someone experienced. Individuals find sharing stories an easy and effective way of illustrating solutions to problem situations and lessons learned. Storytelling is a method for experienced staff to share their knowledge in a way that aids understanding and appreciation for unique situations. This technique for sharing experience is available and in use without constraints. Storytelling is used in work group meetings, team projects, organizational unit meetings (such as staff meetings), in some training courses, and in some developmental assignments.

Under the agency KM program the staff will continue the use of storytelling as a means of sharing institutional knowledge. The staff will develop or procure training on storytelling techniques and explore how to effectively disseminate knowledge-sharing stories.

Mentoring

Mentoring

Mentoring is a mutually agreed-upon relationship in which mentors advise and assist their mentees. From the perspective of knowledge management, it allows individuals to pair with experts as needed to learn ways to improve their skills. Currently the agency has a well-developed career mentoring program in place and also uses clearly-defined advisor roles in the formal development programs. The use of mentoring is effective in individual cases because it allows mentors to share information one-on-one with individuals who need to obtain advice and guidance to enhance their knowledge and skills.

Skills Mentoring Program

The NRC's existing voluntary mentoring program is primarily a career mentoring program whose objectives are to improve staff members' productivity and potential for advancement through enhancement of their present job skills and abilities; support the Upward Mobility and the rotational assignment process by providing employees with guidance and information that will assist them in their career development; improve staff morale by providing satisfying career development experiences through participation in the program; and to enhance the development of a highly qualified and diverse workforce in accordance with the NRC's Comprehensive Diversity Management Plan.

Under the agency KM program, a skills mentoring program will be developed to focus on the transfer of knowledge relevant to the individual's discipline or field of study. Engaging a skills mentor is often an important step in the path to becoming an expert in an individual's discipline. Skills mentoring is viewed as a long-term approach to knowledge transfer—paralleling the more familiar short-term approaches of early replacement hiring and waivers of dual compensation for rehired annuitants. While short-term approaches continue to have a place in the agency's overall approach to KM and SWP, skills mentoring is intended to provide opportunities for more robust knowledge transfer experiences over the long-term.

Early Replacement Hiring (Double Encumbering)

NRC uses the early-replacement hiring (also referred to as double encumbering) technique to provide salaries and benefits funding for up to one year for the purpose of transferring critical skills, competencies, and institutional memory from an employee who is planning to leave the NRC to a replacement employee. It allows for significant overlap between the employee who intends to leave the agency and the new employee who will be replacing the departing employee. This greatly facilitates knowledge transfer in situations for which the departing employee has institutional knowledge which the successor needs.

The agency KM program will not directly expand the use of early replacement hiring. However, early replacement hiring will be identified as part of the agency's inventory of KM techniques and offices will very likely use them to support additional succession planning activities at the staff level.

Rotational, Detail, and Exchange Assignments

NRC uses rotational and detail assignments as developmental opportunities. In the context of knowledge transfer, these opportunities give individuals experience in performing the jobs of current employees and employees who are leaving an organization. Consequently, they are an effective way to transfer critical skills. Rotational assignments are mandatory for some NRC developmental programs (Nuclear Safety Professional Development Program, Leadership Potential Program, and Senior Executive Service Candidate Development Program). They are also used for short-term shadowing opportunities and to rotate staff within a component.

Details and exchanges serve similar purposes to rotations but are generally used to provide NRC employees with opportunities to gain experience by sending them to work with other international, Federal and state agencies and organizations. Alternately personnel from other

agencies and organizations may be detailed or exchanged to gain or transfer knowledge by working at NRC. Visits provide short-term opportunities for staff to share knowledge by either traveling to an outside organization to gain first-hand knowledge of different techniques and technologies.

The agency KM program will not directly create new rotational, detail, or exchange assignments. However, these activities, including shadowing and visits, will be identified as part of the agency's inventory of KM techniques and offices will use them, when appropriate, to support additional developmental and succession planning activities at the staff level.

Teamwork

NRC work teams provide effective environments for transferring technical and historical knowledge on critical subjects and processes. This is especially true when teams are used to review and recommend improvements in key agency processes. Teams are often established by management to work on projects and tasks so this KM tool is already available and has widespread use. There are numerous examples of the effective use of teams to accomplish NRC activities including inspections, rulemaking, policy development, and training.

The agency KM program will not directly increase the use of teams. However, the use of teams as a knowledge sharing and knowledge transfer activities will be identified as part of the agency's inventory of KM techniques and offices may elect to use them as a means of transferring knowledge between new and experienced staff members.

After Action Reviews

Agency Lessons-Learned Program

The staff is currently developing the Agency Lessons-Learned Program (ALLP) to capture, track, store, and retrieve lessons learned. The program supports the agency's goal of providing reasonable assurance that the lessons learned from major events prevent recurrence of other similar events. This program will also enable the retention and dissemination of knowledge gained from future lessons learned, thus increasing its benefit and usefulness to the agency over time.

Under the agency KM program the ALLP will provide guidance and direction for incorporating lessons learned into policy, programs, procedures, and training. The program will also include a searchable repository of lessons-learned items. The Agency Lessons-Learned System is the software component of the ALLP and is envisioned to consist of a repository of document-based and data-based "lessons-learned" information according to the types of lessons learned (e.g., derived from agency task forces, Incident Investigation Teams, etc.), and then searched and retrieved through a Web-based user interface. The system will provide individuals with a mechanism to identify all of the lessons-learned items pertinent to any particular topic or procedure and to quickly locate the source documents.

Communities of Practice

Communities of Practice

Communities of Practice (CoP) are groups of individuals who regularly interact to share knowledge regarding a particular practice. They exist throughout NRC as project teams, work groups, organizational units, and even as professional associations. A common example of more formally-structured community-like groups is the agency's various counterpart meetings. These groups include people with varying levels of experience who have interest and shared levels of involvement in specific subject areas. They also have a sense of community—membership, trust, and willingness to gain and contribute information or solve problems with others in the group. CoPs form as needed and exist as long as the members perceive that need. They are usually self-organizing and do not require action to initiate them.

Under the agency KM program existing communities of practice will be provided with virtual space in the NRC Intranet to store and share their collective knowledge through a commercial community-of-practice software tool. As communities identify their need for a virtual presence they will be supported with training and guidance on maintaining a successful community for knowledge capture and sharing.